

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY  
(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44*bis*)

Applicant's or agent's file reference P38515A/LSA/NHE	FOR FURTHER ACTION		See item 4 below
International application No. PCT/GB2005/002999	International filing date ( <i>day/month/year</i> ) 29 July 2005 (29.07.2005)	Priority date ( <i>day/month/year</i> ) 29 July 2004 (29.07.2004)	
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237			
Applicant PURSUIT DYNAMICS PLC			

1.

This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 *bis*.1(a).

2.

This REPORT consists of a total of 7 sheets, including this cover sheet.

In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.

3.

This report contains indications relating to the following items:

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Box No. I

Basis of the report

☐

Box No. II

Priority

☐

Box No. III

Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

☐

Box No. IV

Lack of unity of invention

☒

Box No. V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

☐

Box No. VI

Certain documents cited

☐

Box No. VII

Certain defects in the international application

☐

Box No. VIII

Certain observations on the international application

4.

The International Bureau will communicate this report to designated Offices in accordance with Rules 44*bis*.3(c) and 93*bis*.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44*bis* .2).

	Date of issuance of this report 30 January 2007 (30.01.2007)
The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer  Nora Lindner
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# PATENT COOPERATION TREATY

REC'D 09 NOV 2005

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From the  
INTERNATIONAL SEARCHING AUTHORITY

To:

see form PCT/ISA/220

PCT

## WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing  
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference  
see form PCT/ISA/220

**FOR FURTHER ACTION**  
See paragraph 2 below

International application No.  
PCT/GB2005/002999

International filing date (day/month/year)  
29.07.2005

Priority date (day/month/year)  
29.07.2004

International Patent Classification (IPC) or both national classification and IPC  
F04F5/46, F04F5/24

Applicant  
PURSUIT DYNAMICS PLC

### 1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

### 2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

### 3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



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**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/GB2005/002999

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**Box No. I Basis of the opinion**

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1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.  
☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
  - a. type of material:  
☐ a sequence listing  
☐ table(s) related to the sequence listing
  - b. format of material:  
☐ in written format  
☐ in computer readable form
  - c. time of filing/furnishing:  
☐ contained in the international application as filed.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/GB2005/002999

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**Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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1. Statement

Novelty (N)	Yes: Claims	
	No: Claims	1-12
Inventive step (IS)	Yes: Claims	
	No: Claims	1-12
Industrial applicability (IA)	Yes: Claims	1-12
	No: Claims	

2. Citations and explanations

**see separate sheet**

Re Item V.

- 1 Reference is made to the following document:

D1: WO 2004/033920 A (PURSUIT DYNAMICS PLC; FENTON, MARCUS, BRIAN, MAYHALL; KITCHEN, PHILIP,) 22 April 2004 (2004-04-22)  
D2: GB-A-2 313 410 (IAN STEPHENSON; DONOVAN GRAHAM ELLAM) 26 November 1997 (1997-11-26)  
D3: US-A-3 664 768 (WILLIAM T. MAYS ET AL) 23 May 1972 (1972-05-23)  
D4: US-A-3 456 871 (ROLF GOSLING) 22 July 1969 (1969-07-22)

- 2 INDEPENDENT CLAIM 1

Document D1 discloses (the references in parentheses applying to this document) (see figure 1):

A fluid mover (1) comprising: a hollow body (2) provided with a straight-through passage (3) of substantially constant cross section with an inlet (4) at one end of the passage (3) and an outlet (5) at the other end of the passage (3) for the entry and discharge respectively of a working fluid; a nozzle (16) circumscribing and opening into said passage (3) intermediate the inlet and outlet ends (4,5) thereof; an inlet (10) communicating with the nozzle (16) for the introduction of a transport fluid; and a mixing chamber (3A) being formed within the passage (3) downstream of the nozzle (16); wherein the nozzle (16) internal geometry and the bore profile of the passage immediately upstream of the nozzle exit are so disposed and configured that in use through the introduction of transport fluid, the working fluid is atomised to form a dispersed vapour/droplet flow regime with locally supersonic flow conditions within a pseudo-vena contracta, resulting in the creation of a supersonic condensation shock wave within the downstream mixing chamber (3A) by the condensation of the transport fluid.

- 2.1 In line 14 to 18 of the independent claim 1, it is specified that "the nozzle internal geometry and the bore profile of the passage immediately upstream of the nozzle exit are so **disposed and configured to optimise the energy transfer between the transport fluid and working fluid**".
- 2.2 The above wording of independent claim 1 is not clear and consequently, the application does not meet the requirements of Article 6 PCT. This claim attempts to define the subject-matter in terms of the result to be achieved, without providing

the technical features necessary for achieving this result. Such a definition is only allowable under the conditions elaborated in the PCT Guidelines, chapter 5, 5.35. In this instance, however, such a formulation is not allowable because it appears possible to define the subject-matter in more concrete terms, viz. in terms of how the effect is to be achieved.

2.3 Furthermore, in document D1 the nozzle internal geometry and the bore profile of the passage immediately upstream of the nozzle exit are considered to be so disposed and configured to optimise the energy transfer between the transport fluid and working fluid.

2.4 As can be seen from the above, document D1 discloses in combination all the features defined in independent claim 1. Hence the subject-matter of this claim is not new (Article 33(2) PCT).

2.5 The documents D2 and D3 disclose also all identifiable structural features of the independent claim 1.

**3 INDEPENDENT CLAIM 7**

Document D1 discloses also a method of moving a working fluid according to the independent method claim 7, which includes modulating the condensation shock wave to vary the working fluid discharge from the outlet (see in particular §36 of document D1).

The subject-matter of claim 7 is therefore not novel (Article 33(2) PCT).

**4 INDEPENDENT CLAIM 11**

Document D1 discloses also a method according to the independent method claim 11, which includes changing the position of the condensation shock wave to vary the working fluid discharge from the outlet (see in particular §85 of document D1). The subject-matter of claim 11 is therefore also not novel (Article 33(2) PCT).

**5. DEPENDENT CLAIMS 2-6, 8-10 AND 12**

The dependent claims 2-6, 8-10 and 12 do not appear to contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step (Article 33(2) and (3) PCT), since they are either known from the documents D1-D4 or relate to technical measures well known in the field of jet ejectors/fluid movers.

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING  
AUTHORITY (SEPARATE SHEET)**

International application No.

PCT/GB2005/002999